

5

Patent Claims

1. The heat exchanger, in particular charge-air cooler for motor vehicles, preferably for utility vehicles, having a first collecting vessel and a second collecting vessel for a first medium, wherein the two collecting vessels each have a first media connection for the first medium and are connected to one another in a communicating manner via at least one heat exchanger element, and having a housing which accommodates the heat exchanger element, conducts a second medium in the interior and has second media connections for the second medium, characterized in that the housing (8) is embodied in such a way that at least one collecting vessel (2, 3), preferably both collecting vessels (2, 3), is/are accommodated in the interior of said housing (8), at least in part with a distance from the inner wall of the housing, at least in certain areas.
2. The heat exchanger as claimed in claim 1, characterized in that the housing (8) completely accommodates the collecting vessels (2, 3).
3. The heat exchanger as claimed in one of the preceding claims, characterized in that the second media connections (30, 31) are assigned to the two collecting vessels (2, 3) in such a way that the first collecting vessel (2) is located between a second media connection (30) and the heat exchanger element (27), and the second collecting vessel (3) is located between the other, second media connection (31) and the heat exchanger element (27).

4. The heat exchanger as claimed in one of the preceding claims, characterized in that the direction of flow of the first medium (4) in the collecting vessels (2, 3) is in a transverse direction, in particular at right angles, with respect to the direction of flow of the first medium (4) in the heat exchanger element (27).  
5
- 10 5. The heat exchanger as claimed in one of the preceding claims, characterized in that the second media connections (30, 31) point in the direction, or approximately in the direction, of flow of the first medium (4) in the heat exchanger element (27).  
15
- 20 6. The heat exchanger according to one of the preceding claims, characterized in that the first media connections (26, 29) point in the transverse direction, in particular at right angles, with respect to the direction of flow of the first medium (4) in the heat exchanger element (27).  
25
- 30 7. Heat exchanger according to one of the preceding claims, characterized in that the first media connections (26, 29) point in the direction, or approximately in the direction, of the longitudinal extent of the collecting vessels (2, 3).  
35
8. The heat exchanger as claimed in one of the preceding claims, characterized in that the respective first media connection (26, 29) is aligned with the longitudinal extent of the associated, first or second collecting vessel (2, 3).  
30
9. The collecting vessel as claimed in one of the preceding claims, characterized in that the  
35

housing (8) is in the shape of a bone when viewed in longitudinal section or its shape is approximated to a bone shape.

5 10. The heat exchanger as claimed in one of the preceding claims, characterized in that the walls (12, 13) and associated bottom and top walls of the housing (8) bear snugly against the heat exchanger element (27).

10

11. The heat exchanger as claimed in one of the preceding claims, characterized in that the housing (8) forms a housing section of a fan housing (38) of a fan (37).

15

12. The heat exchanger as claimed in one of the preceding claims, characterized in that the fan housing (38) is embodied as a helical housing (40).

20

13. The heat exchanger as claimed in one of the preceding claims, characterized in that it is embodied as a counter flow heat exchanger.

25

14. Heat exchanger according to one of the preceding claims, characterized in that it is embodied as a co-current heat exchanger.